

Amendment to the Specification:

On page 1, before the first paragraph, please insert the following paragraphs:

BACKGROUND OF THE INVENTION

1. Field of the Invention

On page 1, please replace the first full paragraph with the following rewritten paragraph:

The invention relates to an imbalance measuring device for rotors, with essentially one bearing device for static fluid bearing for a rotatable rotor, one device to change the rotary ~~behaviour~~ behavior of the rotor, at least one measuring transducer which captures the effects of the imbalance of the rotor in a measuring process, one device to generate a reference signal, and one evaluation device for the signals which the measuring transducer supplies using the reference signal, and methods for imbalance measurement ~~according to the pre-~~

~~characterizing clauses of Claims 7 and 8.~~

On page 1, between the first and second full paragraphs,  
please insert the following paragraph:

## 2. The Prior Art

On page 1, between the fourth and fifth full paragraphs,  
please insert the following paragraph:

### SUMMARY OF THE INVENTION

On page 2, please replace the first full paragraph with the  
following rewritten paragraph:

According to the invention, the object is achieved with an  
imbalance measuring device of the type mentioned at the outset in  
that the bearing device has at least two open, fluid-supplied  
bearing shells to receive sections of the rotor periphery and at  
least one bearing plate which is assigned to a rotor end surface,

rigidly supported and supplied with fluid, in that a device to capture the rotary ~~behaviour~~ behavior of the rotor is provided, and in that the device to change the rotary ~~behaviour~~ behavior is decoupled from the rotor during the measuring process, and the measuring process takes place with rotary ~~behaviour~~ behavior which is constant or preferably variable over time. Regarding the method, the object is achieved by ~~the features of Claims 7 and 8~~ supporting the rotor in a precise position in at least two aerostatic bearings in the radial direction and in at least one aerostatic bearing in the axial direction and during the measuring process the rotational speed is kept constant or the rotary behavior of the rotor is not influenced and the measuring process takes place with time-variable rotary behavior.

On page 2, please replace the second full paragraph with the following rewritten paragraph:

According to the invention, in the case of the imbalance measuring device in this form, it is provided that the rotor is supported in both the axial direction and the radial direction in easily accessible fluid bearings using gas or air or a gas or air

mixture, i.e. aerostatically, and additionally, the accelerating or decelerating drive is decoupled from the rotor during the imbalance measuring process, whereby the measuring device is executed with rotary ~~behaviour~~ behavior which changes over time, e.g. during coasting, or rotary ~~behaviour~~ behavior which is constant over time. The support of a rotor face in the axial direction on fluid-supplied bearing plate surfaces that are assigned to the rotor face results, even in the case of a horizontally arranged rotor axis, in a very precise bearing position of the rotor in the axial direction, since because of the formation of a pressure distribution in the flow, similar to that in a radial diffuser, fluidically the rotor bearing position is fixed against the bearing plate. The join between the bearing plate and its holding structure is executed with high rigidity, to avoid oscillation in the rotor axial direction, e.g. self-stimulated oscillation. The invention is based on the recognition that the desired highly precise measurement can only be achieved within a very short time by combining these actions. With the invention, the rotor is supported and measured freely of interfering forces and moments, and thus a considerably better measurement result is achieved than in the traditional way.

On page 3, please replace the first full paragraph with the following rewritten paragraph:

A further version of the invention provides that the bearing shells are arranged exchangeably on bearing devices, and that the bearing device has a fluid supply system, which makes possible a fluid-proof joining of, in particular, bearing shells which are to be exchanged and have different fluid channels, so that an advantageous ~~standardisation~~ standardization of the bearing device and/or a modular construction of the imbalance measuring device is given. This also applies to a proposal according to which it is provided that the bearing plate is arranged exchangeably on the bearing device or a component, which cannot oscillate, of the imbalance measuring device, and that the bearing device or component has a fluid supply system, which makes possible a fluid-proof joining of, in particular, bearing plates which are to be exchanged and have different fluid channels. Advantageously, a common fluid supply system for fluid supply to both the bearing shells and the bearing plate can be used. The bearing plate can be arranged on a part of the imbalance measuring device in which oscillation is induced by

imbalance, such as the bearing stanchion or bearing bracket, or on a component which is not subject to oscillation induced by imbalance, e.g. the frame.

On page 3, please replace the third full paragraph with the following rewritten paragraph:

Designing the device to change the rotary ~~behaviour~~ behavior as a belt drive, the belt of which can be put on at two essentially opposite rotor positions, is also advantageous since because of it, during acceleration or braking of the rotor only small transverse forces act on the rotor, and can hardly affect the aerostatic bearing.

On page 4, before the first full paragraph, please insert the following paragraph:

#### BRIEF DESCRIPTION OF THE DRAWINGS

On page 4, between the fifth and sixth full paragraphs,

please insert the following new paragraph:

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

On page 6, please replace the third full paragraph with the following rewritten paragraph:

Instead of a belt drive 5, any other suitable drive can be used to speed up or brake the rotor 1, e.g. a magnetic drive or a drive using air or even a drive which can be connected with positive locking. What is essential to the invention is that the drive for the measuring process can be decoupled, so that the rotor 1 rotates freely of disturbing forces and moments. The measurement can be done in the case of time-constant or time-variable rotary ~~behaviour~~ behavior of the rotor, which makes possible the use of differently equipped measuring and evaluation devices possible. If the measurement is to be done with time-constant rotary ~~behaviour~~ behavior, the rotor is kept at a constant rotational speed by a drive which applies no disturbing forces and moments to the rotor, e.g. an air jet.

In the Abstract, please replace the abstract currently on file with the amended abstract attached hereto on its own separate page.